

CLAIMS

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What is claimed is:

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1. An apparatus for clamping a workpiece in a machine, said apparatus comprising:

an inner nose portion comprising a plurality of mounting surfaces, said inner nose portion being rotatable about an axis of rotation,

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an outer ring portion comprising at least one clamp, said clamp being operable between an unclamped position and a clamped position wherein a workpiece is clamped against said mounting surfaces, said outer ring being rotatable about said axis of rotation,

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wherein in said unclamped position, said inner nose portion is rotationally positionable about said axis such that a workpiece positioned against said mounting surfaces may be oriented relative to said clamp to a position at which, with said clamp being operated to said clamped position, said workpiece is clamped against said mounting surfaces,

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the clamping effecting a coupling of said inner nose portion and said outer ring portion whereby with a clamped workpiece, said inner nose portion and said outer ring portion are rotatable together and are positionable about said axis.

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2. The apparatus of claim 1 wherein said inner nose portion comprises two mounting surfaces with the mounting surfaces being oriented at 90 degrees with respect to one another.

3. The apparatus of claim 1 wherein at least one mounting surface includes at least one port for communicating with a source of vacuum.

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4. The apparatus of claim 1 wherein at least one mounting surface includes at least one port for communicating with a source of positive fluid pressure.

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5. The apparatus of claim 1 wherein said mounting surfaces are located on a mounting block on said nose portion.

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6. The apparatus of claim 1 further comprising a controllable locking mechanism operable between a locked position, whereby said outer ring portion is locked in a predetermined rotational orientation, and an unlocked position whereby said outer ring portion is rotatable.

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7. An apparatus for clamping a cutting blade in a grinding machine, said apparatus comprising:

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an inner nose portion comprising a plurality of mounting surfaces, said inner nose portion being rotatable about an axis of rotation,

an outer ring portion comprising at least one clamp, said clamp being operable between an unclamped position and a clamped position wherein a cutting blade is clamped against said mounting surfaces, said outer ring being rotatable about said axis of rotation,

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wherein in said unclamped position, said inner nose portion is rotationally positionable about said axis such that a cutting blade positioned against said mounting surfaces may be oriented relative to said clamp to a position at which, with said clamp being operated to said clamped position, said cutting blade is clamped against said mounting surfaces,

the clamping effecting a coupling of said inner nose portion and said outer ring portion whereby with a clamped cutting blade, said inner nose portion and said outer ring portion are rotatable together and are positionable about said axis.

8. A method of positioning a workpiece in a machining position relative to a tool in a machine, said method comprising:

providing an apparatus for clamping a workpiece in said machine, said apparatus comprising an inner nose portion comprising a plurality of mounting surfaces, said inner nose portion being rotatable about an axis of rotation, and an outer ring portion comprising at least one clamp, said clamp being operable between an unclamped position and a clamped position wherein the workpiece is clamped against said mounting surfaces, said outer ring being rotatable about said axis of rotation,

positioning the workpiece against said plurality of mounting surfaces, rotating said nose portion to align said workpiece with said clamp, engaging said workpiece with said clamp, said engaging effectively coupling said nose portion to said outer ring portion,

rotating said nose portion and said outer ring portion to a predetermined position whereby said workpiece is placed in a machining position relative to said tool.